KANSAS MEDICAL JOURNAL.

VOL. IX. TOPEKA, KANSAS, SATURDAY, MAY 29, 1897. No. 22.

ORIGINAL ARTICLES.

The Pterygium.

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Written for the Kansas Medical Society.

Pinguecula—To understand in part, the etiology and treatment of the pterygium it is necessary to know something of an apparently harmless little growth in the conjunctiva next to the cornea called the pinguecula. This can scarcely be called a disease for the majority of adults in this sec- part of the country have it. It is invariably seen on that part of the conjunctiva of the eyeball always exposed when the lids are open. Consequently it may be on both sides of the cornea; usually it is only on the nasal. To the reader it may be surprising to learn that to a certain degree nearly all men over 30 have pinguecula. The reason why they are not generally noticeable is, they are often transparent and small. The pinguecula is a little triangular growth in the conjunctiva on the nasal and temporal side of the cornea, its base on the circumference of the cornea, its apex towards the canthus. It appears to be a simple thickening of the membrane, and does not encroach upon the transparent cornea unless subjected to continued irritation, when it is apt to grow towards the pupil and make the pterygium. The reason so many people who live upon the western plains have the pinguecula is the eye is almost continually subjected to bright light, wind and dust. Under these circumstances the people ride and go about with the eyelids almost closed to protect them when the triangular area of the conjunctiva which must be exposed that they may see is alone irritated. When a mucous membrane is irritated it does not, like the skin, protect itself by covering its surface with thick layers of epithelium; it simply hypertrophies. That is, there is an increase in the connective tissue elements. So in pinguecula the elastic fibers binding the conjunctiva to the sclera are greatly multiplied. Therefore the denser the tissue becomes the more anemic it must be, so we can easily understand why in acute conjunctivitis the eyeball is deep red and the pinguecula pink. Most pingueculæ are white; many of them are amber color because there is deposited in and between the connective tissue bundles of the growth hyaline matter. The growth is harmless and requires no treatment unless it crosses the edge of the cornea. Then it should be removed, which is best done by cocainizing the eye and dissecting off the tumor with a sharp, thin knife-blade. But care must be taken that all particles adhering to the sclera are scraped away. A stitch to bring the cut edges of the conjunctiva together is not always necessary.

The Pterygium—A comet-like growth on the eyeball; its head on and adherent to the cornea; its tail radiating over the conjunctiva. It is very common in this country, especially among cattlemen. We see it and have an opportunity to study it nearly every day. Yet of all the diseases of the conjunctiva this we understand the least. It is nearly always on the nasal side of the eye; rarely it is seen on the temporal side. Then there are two, an external and an internal—double pterygia. Simply glancing at it it looks like a fleshy growth on the eye extending from the caruncle over into the

transparent cornea. It is in the median line and on that part of the conjunctiva most exposed to the air. Sometimes they are fiery and prominent when they are very deforming. Usually, unless inflamed, they are transparent and not very noticeable, for the majority of them are small.

When the pterygium is carefully examined it will be observed that, if it is large, most of the growth is below the exact horizontal diameter of the eye; that part on the cornea is a distinct tumor, closely adherent and sharply defined towards the pupil. To this a fold of the conjunctiva is attached. It looks as if a growth started on the white part of the eye and moving over the cornea dragged the mucous membrane with it.

The neck, that part which crosses the cornea-scleral line, is generally thick, and it is possible with a probe to find that it is not flatly adherent to the eyeball, for there is usually a folding under of the conjunctiva above and below it. It is distinctly striated and contains many parallel blood-vessels. Starting at the neck the tail gradually spreads out towards the nose; it becomes very thin and may fade away entirely. It is fan-shape. Because the vessels and folds of the conjunctiva radiate towards the neck it looks somewhat like the wing of a fly, for which reason it is called pterygium.

There are two kinds of pterygia—true and false. A false pterygium is nothing more than a duplication of the conjunctiva adhering to the cornea. It results from ulcerative keratitis, and shows that the cornea has been partly destroyed. When, in acute blenorrhea, there is extreme chemosis, and the surface of the conjunctiva is pushed into the bed of a corneal ulcer, it is possible for them to grow together. Then, as the inflammation and swelling subsides, the displaced fold of the conjunctiva remains attached. Such an accident can happen on any part of the circumference of the cornea, consequently these pterygia may be above or below the pupil and covered by the lids, which is never seen in the true variety. If the ulcer in the cornea is exactly on the edge, the resulting cicatrix may pull the conjunctiva over the cornea-scleral border, and if a section of the cornea and conjunctiva are destroyed together as in burns and diptheria, the scar will always be a false pterygium.

One of the most interesting subjects in ophthalmic surgery is the nature and growth of the true pterygium. There are only two theories concerning it worthy of consideration, the Von Arlt and the Fuchs. Until the latter explained its development from the pinguecula the accepted explanation was as follows: From some cause, usually an injury, after disease, a small ulcer appeared at the nasal or temporal edge of the cornea exactly on the median line. The inflammation excited by the ulcer extends to the neighboring conjunctiva and causes a slight swelling, because the chemosis is being continually compressed between the edges of the closing lids, its epithelial surface is forced against the bed of the ulcer and becomes fixed by inflammatory exudation, exactly as was described in the formation of false pterygium. Of course the fold of the mucous membrane will be considerably elevated above the surface of the cornea and at the edge of the ulcer towards the pupil will be sharp and steep. In the healing the corneal and conjunctival epithelium do not fill in the angle, and because that little linear pocket is continually irritated by foreign substances, catarrhal secretions, wind, etc., the angle remains an ulcer. The irritation being continued the inflamed head of the pterygium follows the ulcer as it moves towards the center of the cornea. During this time inflammatory products are being added to the tissues making the head of the growth. As the new connective tissue grows the old cicatrizes, and will either tear the tumor off the cornea or pull the conjunctiva to it. The latter happens, for the mucous membrane is loose and elastic, the attachment to the cornea strong. In this way the tumor advances towards the pupil. So long as the ulcer is present and the head inflamed the pterygium is progressive. If the ulcer heals the growing process stops, the inflammation subsides, and the head atrophies; but the nodular cicatrix

remains.

Now comes the ingenious reasoning. Why the pterygium does not go beyond the center of the cornea, for it is evident if the ulcer does not heal the growth would cross to the opposite side. Von Arlt is silent on that point, but Fuchs gives the hint. The cornea receives its nourishment from the vessels of the conjunctiva and episcleral surrounding it; those capillaries terminate just inside of the transparent tissue. The nutrient fluids are thrown off from this circular band and flow towards the center of the cornea. When the pterygium crosses the scleral line and becomes fixed to the underlying tissues by inflammatory exudate it constricts or obliterates the blood vessels under it; consequently that segment of the cornea receives less nourishment than its surroundings, but it is well supplied from the lymphatic canals at its sides. Now it is evident there is more nourishment near the edge of the cornea than at its center, so as the head advances towards the pupil it gets into the region of least vitality, consequently the amount of inflammatory material thrown off becomes less and less until there is not enough to drag the steep wall of the conjunctiva down to the level of the ulcer. The head of the pterygium ceases to be irritated, consequently the inflammation goes and the ulcer has a chance to heal. The further the head is from the edge of the cornea the greater the tension of the tail, so when the pull of the conjunctiva equalizes the drag of the cicatrix at the head, the growth can advance no further. For that reason a pterygium with a narrow head will not go very far. A broad one may reach the limit. This explanation accounts for the development of the pterygium, but a serious objection to it is, there is not always a progressive ulcer piloting the head. This is easily overcome. It takes from five to fifteen years for a pterygium to advance over the cornea one-fourth of an inch. It is certain that an irritable ulcer would reach the pupil in a few weeks. If this theory is correct it is evident that at the head of a pterygium there is very seldom an ulcer. So we rarely have an opportunity to see it. In fact, the growth advances a little at a time and at very long intervals; consequently we may say that they are all progressive, but for months and months stationary. It is not necessary that the ulcer should extend below Bowman's membrane. At the angle there may be simply an epithelial defect which allows the two basement membranes to come together and adhere, as we have seen they will do, in the chapter on croupous ophthalmia. Pterygia of that kind are loosely attached to the cornea and easily pulled off. Very often the pterygium develops from the pinguecula, as Fuch has very well explained. (Graefe's Arch., 1892, part 3.) In those instances the tumor advances from its seat on the sclera over into the cornea and pulls the conjunctiva with it. The head is not lead by an ulcer for the growth does not move over the surface of the cornea, but under it. The pinguecula is a connective tissue tumor, consequently it enlarges at its periphery. Why it should grow towards the center of the cornea is not known. Possibly it is that that part of the cornea immediately in front of the tumor in the place of least physiological resistance because of the embarassed circulation. The advancing edge of the growth pushes along under Bowman's membrane between the superficial layers of the cornea, consequently it has in front of it a zone of keratitis which can be distinctly seen through a lens. These pterygia are always progressive; it is only a question of time when they will reach the pupil.

Since the neck and tail are made up of folds of the conjunctiva, they sometimes develop cysts because two adjoining surfaces unite and close in a pocket of the mucous membrane. Such cysts I have removed as large as a pea.

I believe there are two kinds of true pterygia—that Von Arlt was correct, Fuchs also.

Beyond the disfiguration pterygia are harmless unless they encroach upon the area of the pupil, when they interfere with the vision. Not alone will the head cut off the rays of light, but it disturbs the refraction and curvature of the cornea a considerable distance beyond it. So we may find

with a small tumor annoying disturbances of vision. They are easily inflamed when they become very red and irritable, and from their presence alone there may be a chronic conjunctivitis. Very large pterygia hinder the free outward relation of the eye which is often distressing.

Treatment—There is but one thing to do: remove the tumor. Anything else is not even palliative. The nitrate of silver, calomel, tr. of opium, etc., will do no good. The pterygium must be cut away, and the sooner it is done the better. There are many ways to do it. The best way is to cut the head off from the surface of the cornea, which permits the tumor to shrink towards the canthus. If it does not do it sufficiently help it by scraping the conjunctiva with a scissor. Then with a sharp knife scrape the shreds and remnants off the sclera and cornea. With one or two stitches bring the conjunctiva from above and below and cover as much of the wound as possible. This is the ideal operation. All plastic methods are modifications of it. If it is successfully done the true pterygia will not return, but the wound may and very often does suppurate when it must heal by granulation.

There is a scar left which makes the false pterygium. That is as deforming as the true, but it will not advance. It is for that reason the operation is so often unsuccessful. Now the smaller the wound the greater the hope that it will heal by first intention, consequently the smallest pterygia should be removed, and if a pinguecula crosses the edge of the cornea it calls for an operation. When a pterygium encroaches upon the pupil very little is to be gained, so far as the vision is concerned, from the operation. If the patient is quite blind it is best to leave the tumor alone, but make an irredectomy upwards.

Dr. Nicholas Senn, Professor of Surgery in Rush Medical College of Chicago, speaking of operations for appendicitis, very tersely summarizes his position in the following words: "The custom followed by many American surgeons, to remove the appendix in all cases in which a diagnosis of appendicitis is made, is a very harmful one. The removal of the appendix should be limited to, first, those cases in which during the first attack symptoms arise which portend danger to life, and second, to relapsing appendicitis, and in a large percentage of such cases the patient remains free from a second attack—*American Journal of Surgery and Gynecology*.

Effect of Drugs on Secretion from the Tracheal Mucous Membrane.

Exchange.

1. Alkalies increase secretion.
2. Potassium iodide increases secretion.
3. Emetine markedly increases secretion.
4. Saponin in small doses does not increase secretion; in large doses it diminishes secretion.
5. Cold, when applied to the abdomen, increases secretion.
6. Heat, when applied to the abdomen, diminishes secretion.

Significance of Heart Pain.

New York State Medical Reporter.

Taking consecutively a hundred cases of decided forms of heart diseases under his immediate care, Dr. A. Ernest Sansom has found that in just half the number there was no complaint whatever of pain in the chest. Seventeen referred the pain generally to the front of the chest, fifteen to the back (especially between the shoulders), twelve suffered pain at the epigastrium, eleven suffered pains on the left side of the chest, while two referred their sufferings to the right side. Those who localized the pains to the exact area of the heart were but eight, and of these two complained of it only after exertion. One described it as a sense of extreme soreness at the apex, while in another it partook of the character of neuralgia about the left breast. Only 8 per cent. complained of pain directly referred to the situation of the organ diseased.

Kansas Medical Journal.

PUBLISHED WEEKLY

BY THE UNION PUBLISHING COMPANY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

Per annum, in advance..... $1 00
Single copies..... 15 cents

Subscription may begin at any time. The safest mode of remittance is by bank check or postal money order drawn to the order of the undersigned. When neither is accessible, remittances may be made at the risk of the publishers by forwarding in Registered Letter. Address

UNION PUBLISHING CO.,
TOPEKA, KAS.

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Topeka, Kansas, Saturday, May 29, 1897.

Catalogue Time.

The medical catalogue season is upon us. The catalogue is now ripe and shipments will begin in June. Sometimes a bigger name is given—that of announcement. The meaning is just the same. The way to find out what is in the catalogue is to read it. It may give you an idea of the school it (mis)represents, but it will serve to stimulate the imagination of the reader and while away the time. It will also give an idea of the versatility of the catalogue fiend. There is a great deal of human nature in a catalogue. The greater the promise the less will be fulfilled. The more of the *I am*, the less of the *you are*.

The Purpose—The object or purpose of the announcement is the same as any legitimate advertising. It is to let those who are interested in the study of medicine know where they (the schools) are at, what they are doing, how they are doing it, and the facilities they have to work with, and to call attention to the work done. On second thought we are of the opinion that those who prepare catalogues are as honest as the average person, and that any overdrawing or enlargement upon the facts is due to the nearness the work is to their personal welfare and in accordance with their philanthropic natures.

Who Gets Them and the Use Made of Them—They are sent to prospective and actual medical students and physicians generally. They are looked over or thrown aside as the receiver may determine. There is probably one hundred catalogues sent out for every medical student in attendance. This is a large amount of ammunition used up for the game received. But it pays. It is the principal way in which the profession gains a knowledge of the work done at a particular school, and the physician, with his experience in schools, is able to determine largely the worth of the school by its catalogue. At least he is better prepared to advise young men and women where to go. The student depends largely upon his medical advisor as to his choice of schools. The size of a school or its age does not determine its merit any more than that of a man. Paraphernalia never makes up for brains and energy. Theories cannot fulfill the practical demonstrations and bedside experience. There are a large number of medical schools in the country doing good work. Medical knowledge is more generally diffused today than in any other period of the world's history. This is due to the numerous medical centers built up in the main by medical colleges.

The increase in medical men is in the hands of the medical profession. Whenever the profession as a whole or the individual doctor wants to stop making more doctors, they will advise young men and women to let the study of medicine alone. They will discourage instead of encourage them in the study of medicine. This can be done directly and indirectly. Directly by advising them not to study medicine, showing them

the unpleasant features in the practice, the work, the irregular life, the privations, the servitude, and the poor compensation received. Indirectly by presenting the study in its dry form and most repulsive aspect. They will also advise them to get a liberal literary education before beginning the study of medicine. A defective literary education makes the study of medicine much more difficult. We have tried it. But enough. Look over the catalogues, take your choice, and pay your money.

Governor Stephens Talks.

Governor Stephens was asked on May 6, what he thought of the resolutions adopted by the Clinton District Medical Society at Mexico, Mo. The governor said:

"The allopaths are not talking about me any more bitterly than they are about themselves, and if they can stand it I am sure I can. I never saw two of them in my life agree upon any one proposition, with the exception of the one that they despise the homeopaths, and all others who differ from them. I have, however, no war to make upon them, and have treated them, since my inaugeration, courteously at all times. Every State institution in Missouri is in their control, with the exception of the one at Fulton. The homeopaths of the State pay from one-fourth to one-third of the taxes of the State, and I think they are entitled to some recognition at my hands. In many of the States of the Union they are given control of one or more of the State institutions, and their records in every instance have proven excellent, and eminently satisfactory to the public, and I see no reason why they should be ignored in Missouri. I will say in this connection that, while it is not my intention to make any threats, if the allopathic doctors continue to amuse themselves by passing slanderous resolutions against me because of this action I will be forced to turn over, instead of one institution to the homeopaths, every institution in the State to them within the next two years." "Is it your intention to give the homeopaths equal representation on the State Board of Health?" "While the homeopaths are prevailing upon me to do this, I have not made up my mind that they are entitled to equal representation."

As evident from the above Governor Stephens has some ideas of his own, and proposes to conduct his office after his own plans. The regular profession of Missouri are doing themselves a great deal of harm by the action they are taking in this matter. The homeopaths and their friends have long been demanding recognition in State appointments. If they are incompetent to manage these offices, the best way to prove it is in the attempt. We do not believe that the regular physicians of this country are so narrow that they cannot accord whatever of credit is due to any organization or party, and we do not believe the real scientific members of the regular profession are afraid of a contest or a comparison of work in the hospital or at the bedside with the homeopaths, or any other kind of physician.

Let them prove their claims by their work at the asylum, if they fail that will be evidence enough. The harsh criticisms against the governor simply belittle our profession.

Four Deaths After Anti-Rabic Inoculation.

Clinical Reporter.

In December last eight boys of Baltimore were bitten by a rabid dog, five directly through the flesh, the remaining three through the clothing. The eight were promptly sent to a Pasteur Institute, and there inoculated *secundum artem*. The proper time having elapsed the boys were returned to their parents; all danger was supposed to have been averted. Such, however, was not the case, for within a few weeks four died of hydrophobia in quick succession.

In the mind of the average lay reader the lives of one-half of these boys are probably supposed to have been saved by the Pasteur

Institute, and to all readers, whether medical or lay, the fact is obvious that the inoculation failed to save the lives of one-half.

All the fatal cases were bitten directly through the skin, the virus being inserted immediately by the teeth of the dog; three of the recovered cases were bitten through clothing, while the fourth had two indistinct teeth marks in the scalp, and a nick in the helix of the left ear. Of the cases bitten through the clothing, therefore, it is doubtful whether any virus was carried into the skin with the dog's teeth; indeed, it is quite probable that the teeth were wiped clean of all danger by the cloth through which they passed. The wounds on the scalp of the fourth boy were of the slightest description, having almost entirely healed before the boy reached New York; the cartilaginous portion of the ear alone furnishing a probable entrance for the virus. Of course there is a possibility of infection in this slightly bitten case, but the chances of danger were far less than in the cases of the four boys who were more severely bitten, and who died.

From the foregoing the question naturally arises, to what extent were these eight boys benefitted by the Pasteur treatment?

It is a well known fact that all persons bitten by rabid animals do not die or even have hydrophobia. From the "Annual of the Universal Medical Sciences" for 1889 we quote:

"The proportion of canines that develop rabies as the sequel to wounds inflicted by other and *known* rabid carnivora would seem to be extremely small. One author (Stockwell) quotes them at less than five per cent., giving instances in which many animals bitten several times often recovered without misshap; and he cites Hunter as fixing the proportion of one in *twenty-one*; Hamilton, one in *twenty-four;* Nieuman, one in *thirty-five;* Fabre, but *thirty-one* out of a total of *nine hundred and thirty-two;* and Youatt treated four hundred members of the human race supposed to have been bitten by rabid creatures without a single failure. H. Voeller, of Sacramento, however, in speaking of immunity, makes Youatt say two dogs out of three bitten becomes rabid. Cattle and sheep are far less susceptible, and man the least so, for Hunter estimated the proportion as one in twenty, and Hamilton as one in twenty-five. According to this computation two-thirds of the person bitten escape the disease, and of the thousands of persons who have attended on patients with hydrophobia no authentic instance has been recorded in which the disease was contracted either by attendance during life or infection after death."

With this testimony we think it justifiable to agree with the "British Encyclopædia," that less than one-half of those bitten by rabid animals die from the effects of the bite.

In these statements the question of intervening clothing is not considered, and we are therefore left to assume whatever percentage of direct bites we please. We do not think an assumption of one-half direct and one-half indirect bites is unfair; and from this basis we still find a few of those who are infected directly by the teeth of the rabid animal recovering from the bite without fatal termination.

We must a second time ask what benefit the eight Baltimore boys derived from inoculation with anti-rabic virus?

A large majority of medical men are satisfied with this treatment devised by the learned Pasteur, and we will not for one moment dispute the validity of the theory; but—what of these Baltimore boys? Why did the four who received the serious bites die, and the four whose injuries were comparatively trivial recover.

Before the days of cultivation of anti-rabic virus from either canine saliva, brain, or spinal cord, less than one-half of those bitten by rabid dogs recovered; under the use of Pasteur's system of inoculation exactly half of those dog-bitten boys died; the half that recovered probably had no virus instilled into them from the dog.

From the "Annual of the Universal Medical Sciences" for 1890 we extract the following:

"While there are undoubtedly some intelligent persons who do not accept Pasteur's deduction, the possibility is that the

opposition will finally be confined to the smaller collection of unreasonable cranks."

Possibly this day may come, but of a certainty there is still good, solid ground for questioning the methods used in practically applying Pasteur's deduction, good grounds not only for "*some* intelligent persons," but for *all* intelligent persons—nay, all *scientific* persons to question the methods of the Pasteur Institute of New York.

Clinical Repots by Dr. De Garmo.

The Post-Graduate.

1. This man is 65 years of age, and has had a hernia for some years. I examined him two or three months ago, and advised him to have an operation, as we could not treat him by mechanical means. I have watched the age limit, but it is not fixed. I did last year five operations where the patients were over 65; three were over 75, and one 80. Do not try to pick out those to operate on over 80, even though old people stand the operation very well indeed. They appear to stand the operation better than some younger people. At the other extreme I have not yet reached a limit. I have said not to operate under a year old, but I was forced a while ago to do an operation on both sides on a child five months old who had strangulated hernia. It is usually not necessary to operate on children under one year for radical cure, as they can be cured by a truss in almost every instance.

I find here a mass on the left side that does not return to the cavity of the abdomen. I think it is a piece of omentum, and it furnishes an outlet for the hernia above it. There is always danger of bowel slipping down beside the omentum, and strangulating. Saturday night I was called to see a case of strangulated hernia. Everything was inconvenient, and we could not send it to the hospital. The hernia had been strangulated for five or six hours before I saw it, and the intestine was black, but after the stricture was cut the color was partially restored, and I felt justified in returning the bowel to the cavity of the abdomen. This man has on the opposite side a reducible inguinal hernia. He is strong and healthy, and will be operated upon in the hospital tomorrow. Ordinarily we do not keep a patient in the hospital more than twenty-four hours before the operation.

2. This man has had a hernia for three weeks. He does not know how it was caused, but thinks by lifting. Constipation and cough are common causes. Often degeneration of muscle is a common cause. The swelling extends up into the canal on the right side. He has a cough, and it is more likely to be the cause than lifting. He is 59 years of age, and can have his hernia retained by a light truss, or be operated upon, and cured. He prefers to wear the truss. In measuring for a truss go around the pelvis midway between the trochanter major and the crest of the ilium, and over the internal ring.

3. This man has an extremely difficult hernia to hold. It is practically a direct hernia, the canal is unnaturally short, and the internal ring is dragged down so that the truss has to be applied lower down than usually applied. After the hernia has been retained by a strong truss for two or three weeks a lighter spring may be used.

4. This man is 60 years old. The general contour of a hernia should be observed before it is touched. There is some bulging on the opposite side. The veins are enlarged on the leg in the femoral space, and the condition may be mistaken for femoral hernia. All we feel is omentum, but suspect that there may be intestine there. He has had it two years. By invaginating scrotal tissue over the finger, injury might be done by pushing the finger into the external ring. I find here nothing but sac. In Germany there are men who make it a business of passing the finger through the canal, thereby weakening the parts so that hernia comes down in a few days. Men have this done in order to avoid military service. There is something in this swelling that does not go back into the canal. It may be a thickened sac or omentum. I think we may have trouble holding this hernia from a piece of omentum adhering to the canal.

I do not think it is a satisfactory case for mechanical treatment. Attacks of colic in such cases show the presence of intestine, and it does not occur in protrusions of omentum.

5. This child has some phimosis. I am asked if phimosis is a cause of hernia, and say it is not unless there is straining in passing water through the small opening. On account of growth small children under treatment for hernia should be seen every two weeks at first, and later once a month for a year.

6. This little girl had a truss put on which is now too small, and has made the child sore because of that, and because it has not been kept clean. I will put on a larger truss. You notice the naval is prominent, but it is all right as you feel no slipping when compressing it suddenly between thumb and finger. Little girls with inguinal hernia get well rapidly unless there are complications of a fluid cyst corresponding to hydrocele in the male, or a piece of omentum adhering to the bottom of the sac. Never take a truss off for a year after the hernia appears cured.

7. This child has not been seen for two years. These cases do not get along well unless seen with regularity. The boy is 9 years old, and has been under treatment for a good while. It is now a question whether a truss will cure or not. There is a thickening that does not return to the cavity of the abdomen. I think omentum is adherent to the sac. We can promise a permanent cure if the boy is left in the hospital two weeks, but he will not be cured in any other way. He has been wearing his truss pad about an inch out of the way. There is hope of cure before ten years of age, but not where there is omentum like this adherent outside the canal.

The Organism of Syphilis.

British Medical Journal.

Van Neissen (reprint from *Wien. med. Woch.*, Nos. 36-40, 1896) replies at some length to the critics of his book on the syphilis bacillus, and adduces further evidence in support of his views. His later work has been carried on mainly in two directions: first, the comparison of micro-organisms stained in syphilitic tissues with those observed in pure cultures; and, secondly, the cultivation of the special bacillus from the affected tissues. He has specially investigated syphilitic lesions of the brain and spinal cord. Sections of these were stained by Gram's method, or cultivations made by imbedding little pieces in gelatine, so that one surface was left exposed to the light. On this numerous colonies soon developed, which were employed in further researches. The author claims to have infected eight rabbits in various ways, so as to produce secondary syphilitic lesions, but he has not yet succeeded in inducing the primary lesion upon the genitals. Owing to the great difficulty of excluding other cases, such as infection by tubercle and coccidia, his researches in these directions are not yet ripe for publication. He has, however, been able to demonstrate the "syphilococcus" in an excised primary sore of the prepuce, and also to cultivate it in gelatine mixed with the blood taken from the wound produced by the excision. The cocci were present throughout the tissues removed, but were particularly abundant, often forming emboli, in the deeper layers. Van Neissen is therefore convinced of the diagnostic value of the organism in primary affections, and although the result with later syphilitic lesions of the central nervous system are not as yet equally consistent, he is convinced that further improvements in investigation will render them equally available for diagnosis. His inoculation experiments are very striking. A pure culture from the organism, from the primary sore above mentioned, on veal broth was injected two months later into three rabbits, a goat, a guinea pig and a pigeon. In several of the animals typical hard sores developed, which in the pigeon took on a phagedenic course, while in the goat and one of the rabbits gummata developed. The syphilis thus produced in animals was characterized by slow and protracted symptoms, by a marked

tendency to cell proliferation in the form of tumor with necrotic centers, and by involvement of the capillaries and lymphatics. The author claims to have proved that his syphilococcus, when injected in pure culture into animals, will produce both the typical primary affections and gummatous tumors.

Treatment of Pneumonia and of Influenza by Large Doses of Digitalis or Digitalin.

Boston Medical and Surgical Journal.

Petresco, of Budapest, is known to have been the most earnest advocate of the treatment of pneumonia by digitalis. His contributions have been numerous since 1880, when he first set forth the claims of this method of treatment. As these views have been fully stated in this *Journal*, we shall very briefly sum up his conclusions preparatory to indicating the results of the recent clinical experimentation of Gingeot and Deguy.

It will be remembered that the doses which Petresco recommends are enormous as contrasted with what has ordinarily been regarded as the safe dose of digitalis, Petresco stating that he does not hesitate in single doses to give as much as three drachms (180 grains) of digitalis leaves in twenty-four hours. He prefers the infusion made with five parts of digitalis leaves in two hundred of water, and then adding forty parts of syrup of orange-peel, the dose then being a tablespoonful every half-hour. He affirms that in general this dose is well borne, and that he has never met with a single case of poisoning. He says that he has had the best results in genuine fibrinous pneumonia, though he has obtained satisfactory results in broncho-pneumonia and in pleurisy. He claims in the most positive manner to have cut short cases of croupous pneumonia, so that within twenty-four to forty-eight hours he has succeeded in obtaining sudden and almost absolute reduction of the temperature to the normal, with strengthening of the pulse, and general improvement in the patient's condition. The most evident effect is the marked slowing of pulse with increased tension; at the same time disappearance of all the local symptoms of pneumonia can be noted. He enforces the value of this method of treatment by statistics, the mortality of cases so treated with large doses of digitalis being much less than that observable when any other method is employed.

It must be admitted that the medical profession has been slow to adopt this new mode of treatment, and few have had such brilliant results as Petresco claims. Lowenthal's trials in the Vienna hospital were unsatisfactory, the patients (twelve in number) indeed recovering, but with depression and exhaustion increased rather than diminished, and a somewhat lengthened convalescence. Renier's experience in twenty-five cases is very similar to that of Lowenthal. In one of Renier's cases alarming symptoms of collapse lasting for six days came on. He attributed this colapse, which was characterized by cyanosis, sunken face, vomiting, small and intermittent pulse, cold sweat, hiccough and stupor—to the digitalis.

Glingeot and Deguy have published their trials with digitalis in pneumonia and *la grippe* in the *Revue de Medecine*. They do not give the digitalis in the form of infusion, but they use the crystalized digitalin in a one per cent. solution. Fifty drops of this solution contains one milligramme of the alkaloid. To obtain certain and rapid effects, they administer early in the disease, one massive dose of a milligramme, and give no more medicine of any kind for five or six days. In proceeding thus, they have never observed any untoward accidents. At other times they give smaller doses of digitalin, and repeat them till the desired effect is obtained, thus, instead of the one full dose of fifty drops, they give twenty drops per day for two days, and then stop. But what ever may be the mode of administration of the medicament, it is not desirable to exceed the quantity of sixty drops of the centesimal solution in seven days.

They affirm that the digitalin is particularly efficacious when the pneumonia of influenza is not accompanied with digestive

troubles.

In a dozen cases of pneumonia treated by this method, these authors have not had a single case of death, and they have obtained recovery in two desperate cases of double pneumonia. Under the digitalin treatment, the patient generally feels decidedly better the second day after the full dose has been administered; the delirium ceases, the albumin diminishes to soon disappear altogether; the temperature falls, and the pulse becomes less frequent, but more energetic; the diuresis augments; the congestions are dissipated, and the pneumonic exudate absorbed more rapidly than in cases when the digitalin is not employed. In short, the digitalin accelerates the normal evolution of the malady.

What has been said of frank pneumonia applies also, according to these writers, to the broncho-pulmonic determinations of *la grippe*, and the same treatment is also useful in grave or complicated gastro-intestinal forms, especially when the pulse is feeble, small and rapid.

In case of *la grippe* simulating tuberculosis the digitalin has given better results than any other treatment (quinine, cold baths, antyprin, etc.). Another fact has been noted by MM. Gingeot and Deguy—the employment of digitalin may render service from the point of view of different diagnosis. They affirm that they have never been able by means of digitalin to obtain an antithermic effect in acute tuberculosis or typhoid fever. On the other hand, in case of the grip simulating miliary tuberculosis or typhoid fever, the administration of digitalin has always brought on rapid defervescence, while ameliorating the other symptoms.

One of the observations related by Gingeot and Deguy well illustrates the help which this treatment gives towards the differential diagnosis of certain doubtful affections. A patient presented himself for treatment with intense dyspnœa, a decidedly pneumonic aspect, and a focus of subcrepitant rales. The diagnosis of pneumonia in the first stage was made, and thirty drops of the solution of digitalin administered. The next day the condition of the patient was worse, and twenty drops more of the solution were given, but without any improvement in the pulse or general state. The day following, the patient succumbed in coma. The autopsy showed that this was not a case of pneumonia, but of typhoid fever with all the characteristic lesions of Peyer's patches,

The conclusion drawn from the study of this and like facts is that when the administration of digitalin to a person supposed to be affected with pneumonia or influenza does not slow the pulse, and ameliorate the condition, there is reason to believe that an error in diagnosis has been committed.

Breathing and Bicycling.

John O. Roe. M.D., in Trained Nurse.

The function of respiration is one of the most important, if not the most important, of the vital functions over which man in any degree has control. It is, therefore, the one that is most easily and most frequently perverted by pernicious habits. Mouth-breathing in every instaace is followed sooner or later by more or less ill effects, but these ill effects are much sooner produced when the person participates in active exercise, which greatly accelerates the action of the heart and lungs, than when in a quiescent condition; and in no other athletic exercise are great demands more frequently made on these organs, and the ill effects of mouth-breathing more pronounced, than in bicycling. This observation is made from the large number of persons who as patients have complained to the writer of the distress which they experienced from dryness and irritability of the throat while riding their wheel, caused by mouth-breathing, necessitated by obstructed nostrils. The normal copacity of the nasal passages for the transmission of air is equal to that of the larynx when widely opened. Therefore, provided there are no obstructions in the naso-pharynx and fauces, such as adenoid growths or enlarged tonsils, there should be no necessity for opening the mouth to breathe during ac-

tive exercise. Man was intended to be a nose-breather only. This is clearly shown by the functions which the nose performs during respiration. It is also shown by the fact that the first inspiration of the new-born babe is through the nostrils; and if these passages are closed the breathing is very greatly embarrassed, even though the mouth be opened.

There are several important functions which the nose performs in fitting the air for respiration. These are: (1) it serves the purpose of a filter for arresting foreigh substrnces, such as dust and germs; (2) it imparts moisture to the air; and (3) it modifies the temperature of the air, adapting it for respiration.

1. That the nose performs the functions of a filter is very clearly shown by the large amount of dust and other foreign substances found in the secretions when the person has been inhaling air laden with these substances. It is also shown by the large number of germs deposited in the nose and not found in the air passages below. Furthermore, these organisms are mainly arrested in the anterior portion of the nose, since the vibrissae of the vestibule are found swarming with them, while the deeper portions of the nose are comparatively free from them. The scarcity of micro-organisms in the latter is shown to be due, first, to the active expulsive powers of the ciliated epithelium of the mucous membrane, which has the power to move particles along on its surface at the rate of twenty-five millimeters per minute; and secondly, to the special properties of the nasal mucus which renders it an unsuitable soil for the growth of micro-organisms, and hence does not favor their multiplication.

2. It imparts moisture to the air. It is estimated by physiologists that during 24 hours about 5,000 grains of water are taken up by the respiratory current of the air in its passage through the respiratory apparatus. Bosworth maintains that the greater portion of this water is derived from the nasal passages for the reason that the vascular tissue covering the turbinated bodies is the only tissue capable of furnishing it, and that the mucus membranes of the lower air prssages contain mucus glands only, which secrete mucus alone. Numerous experiments have been made which confirm these observations. The amount of water given off by this vascular tissue is furthermore controlled by the vasomotor nerves, which regulate the supply according to the varying degrees of humidity in the air respired.

3. The modification of temperature that takes place in the nose is especially important when the person is subjected to extremes of heat and cold. Air on passing through the nose is brought very nearly to the bodiy temperature, regardless of the temperature of the air before inhalation. Air made to pass in through one nostril and out the other, the passage to the pharynx being closed, has been found in different experiments to be raised to a comparatively uniform temperature of from 86° to 92.3°F. It has also been shown that air at an exceedingly high temperature, at 140°, is reduced to the uniform temperature of 92° on passing through the nose alone.

With a knowledge of the important functions which the nose performs in purifying and modifying the air in fitting it for respiration, the injurious effects of mouth-breathing upon the throat and lungs can very readily be understood. Air passing directly to the lungs through the mouth has no filter by which the dust and germs are removed, nor is the air modified by having moisture and warmth imparted to it. In consequence of this, dryness of the pharynx is soon produced and the intractable disease termed pharyngitis sicca is engendered. The larynx becomes irritated, hoarsness and coughs are induced thereby, and a general catarrh of the throat and bronchi is caused. These conditions extending into the deeper air passages soon produce an excellent feeding ground for bacilli to develop, and consumption is not the infrequent result. Moreover, mouth-breathing gives a peculiar vacant expression to the countenance and the open mouth is so conspicuous that already it has come to be recognized by the laity, and commented upon by the press as

bicycle mouth, owing to the frequency with which it is seen among bicyclists. These evil effects of mouth-breathing are not, however, confined to cyclists; but it is equally injurious to all to whom from carelessness or from necessity by reason of the nostrils being narrowed or obstructed by diseased conditions, it becomes a habit or practice.

The reason that we direct our warning especially to cyclists is that cycling is so nearly universal at the present time as to render it the principal mode by which exercise is taken and therefore the ill effects of mouth-breathing are most often noticed among wheelmen. The larger the number, the more urgent becomes our duty to teach them the importance of obeying Catlin's injunction, "Shut your mouth and save your life."

Poisoning by Arsenic in Vagina.

Centralblatt fur Gynakologie.

A maid-servant from Styria, aged twenty-five, was seized with vomiting and faintness on September 20th; left her situation on September 22d; picked up prostrate a day later and sent to hospital. Was almost pulseless, the abdomen was very tender; pretended she was menstruating, and no pelvic examination was made; there was scarcely any pulse. She died September 22th. At the necropsy acute fatty degeneration and hæmorrhages in solid visecra were detected, and phosphorus poisoning suspected; but a closer examination also revealed icterus, hæmorrhages under skin and in muscles, spleen greatly enlarged, and recent fibrinous pelvic peritonitis. In the vagina was found a paper bag containing still a quantity of white arsenic in fine crystals. Acute inflammation of the vagina with false membrane on the labia minora and incipient sloughing of the rectal mucosa over the recto-vaginal septum were detected; the labia majora was very edematous. The case was probably suicidal, as the deceased had told the hospital authorities she was menstruating so as to throw them off guard, though the pain must have been intense.

In the last century a peasant murdered three of his wives by introducing arsenic into the vagina after connection. Another wife murder was effected in the same way in 1799. In 1864 a single woman finding herself pregnant, attempted to produce abortion by this means, but only succeeded in killing herself. In 1890 a prostitute was murdered by a man who by force introduced a quantity of arsenic into the vagina, wrapped up in a knot of horsehair.

Signifcance of the Leucocytes in Exudates and Transudates.

University Medical Magazine.

Winiarski confirms the assertion of Kerczynski and Wernicki that in serous exudates which neither show a tendency to pass into suppuration nor are due to malignant disease, the lymphocytes, especially the small ones, preponderate numerically. When the neutrophiles are in the majority, the case is either one of neoplasm (carcinoma) or suppuration is going to take place. The presence of eosinophiles and of red corpuscles is without significance. The author found in pleural and peritoneal transudates almost exclusively lpmphocytes; in purulent pleural exudates only neutrophiles; in all serous inflammatory effusions, where new growths were not present, lymphocytes were practically the only cells found. None of the last group ever passed into suppuration, although the number of lymphocytes rose at times as high 6,230 per cubic millimetre. In a case of meta-pneumonic serous pleurisy, in which the number of leucocytes was small, but in which neutrophiles were chiefly present, suppuration developed later. All this is true of peritoneal exudates.

In the serous pleural exudates the number of leucocytes varies from 270 to 9270 per cubic millimetre; in the transudates, from 60 to 300. In peritoneal effusions the figures are smaller. During the absorption of exudates and transudates the number of leucocytes increases; during the formation of fibrinous deposits it diminishes.

A Remedy in Nervous Disorders when Characterized by Melancholia.

Toe "Reference Book of Practical Therapeutics," by Frank P. Foster, M.D., editor of the New York *Medical Journal*, which has recently been issued by D. Appleton & Co., of New York City, contains an article of which the following is an excerpt, which we feel expresses the consensus of medical opinion as adduced by actual results: "Antikamnia is an American preparation that has come into extensive use as an analgesic and antipyretic. It is a white, crystalline, odorless powder, having a slightly aromatic taste, soluble in hot water, almost insoluble in cold water, but more fully soluble in alcohol. . . . As an antipyretic it acts rather more slowly than antipyrine or acetanilide, but effciently, and it has the advantage of being free, or almost free from any depressing effect on the heart. Some observers even think that it exerts a sustaining action on the circulation. As an analgesic it is characterized by promptness of action and freedom from the disagreeable effects of the narcotics. It has been much used, and with very favorable results in neuralgia, influenza and various nervous disorders characterized by melancholia. The dose of antikamnia is from three to ten grains, and it is most conveniently given in the form of tablets."

Salicylates and Hemoptysis.

American Medico-Surgical Bulletin.

Dr. Thomas J. Mays calls attention to the value of the salicylates in the treatment of cases in which a profuse and persistent loss of blood occurs, and with which is associated the rheumatic or the gouty diathesis, and in which a careful examination probably fails to disclose any physical evidence as to the source of the blood in the lungs. Such hemorrhages seem to have a partiality for coming on at night, although this is not always the case, and the patient, in spite of treatment, gradually grows weaker, and may even die from exhaustion, or from acute or subacute pneumonia. But where close inquiry in such cases discloses, as it probably will, that rheumatism or gout has existed in the family, sodium salicylate, given in the following combination, has been found to exert a remarkable effect in checking the hemorrhage, and promoting a general improvement:

Sodium salicylate, 4 dr.
Potassium acetate, 1 dr.
Tincture digitalis, 3 fl. dr.
Wintergreen water to make 4 fl. oz.
Teaspoonful four or five times daily.

The writer also finds that the salicylates are not only applicable in hemoptysis, but are of value in many other forms of chest disease, and that, whatever their modus operandi may be in establishing a cure in rheumatism and gout, there is no doubt that they exert the same kind of action in the relief they bring in pulmonary disease.

There is no intention of advising the use of salicylates in every case of hemoptysis, nor its substitutes for other drugs, such as astringents, arterial sedatives, or cold applications; but the writer believes that in hemoptysis in which the rheumatic tendency manifests itself either in a latent or active manner, whether obscure or not, salicylates are specially indicated, and will exert an excellent influence on the course of the disease.

Lactophenin and Pain.

St. Louis Medical and Surgical Journal.

Dr. W. C. Buckley, of Philadelphia, says (in *The Laryngoscope*, February, 1897): Lactophenin reduces abnormal temperature, but does not seem to exert any marked influence upon the circulation or respiration. I have used it in pneumonia, influenza, scarlatina, acute tuberculosis accompanied by fever, and septicemia, with excellent results. In the high temperature and restlessness of enteric fever (typhoid) it has also served me a most excellent purpose; here a child may take one or two grains with pleasant effect. The full adult dose is from four to sixteen grains. In giving this remedy the proper plan is to begin with small doses, and increase according to the effect produced.

The foregoing gives but a glimpse at the most recent reports. Dr. J. Homer Coulter (in *The Journal of the Ameriaan Medical Association*, November 7, 1896) endorses it strongly in the treatment of quinsy; and Dr. S. V. Clevenger (in same journal, January 30, 1897) in a classical essay on "Pain and Its Therapeusis," considers its whole range of therapeutic usefulness, endorsing it unreservedly on its record and his own confirmatory experience. Many other reports have appeared in American medical journals during the past year all tending to the same conclusion: that Lactophenin is a safe, efficient and reliable antipyretic with predominating analgesic and hypnotic properties.